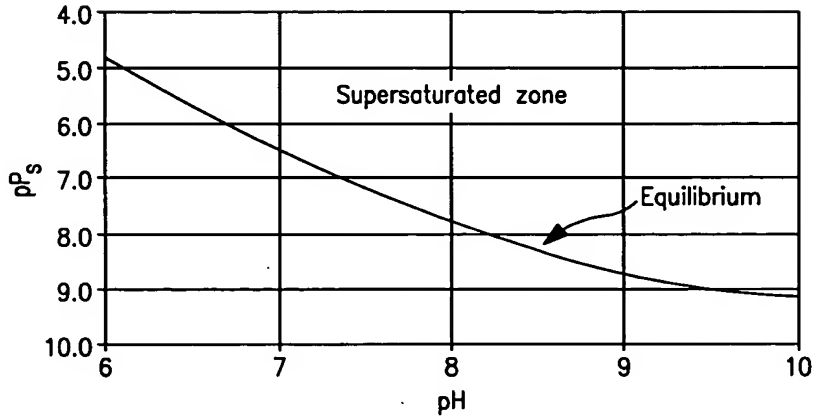
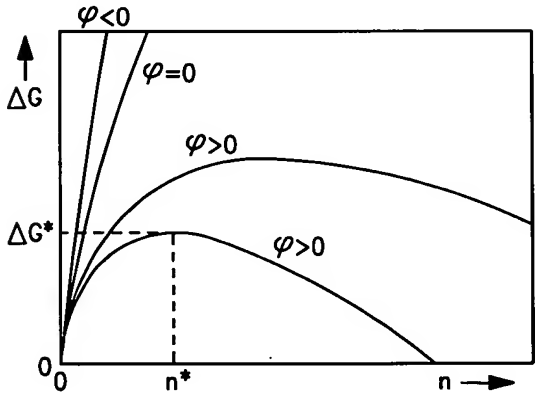


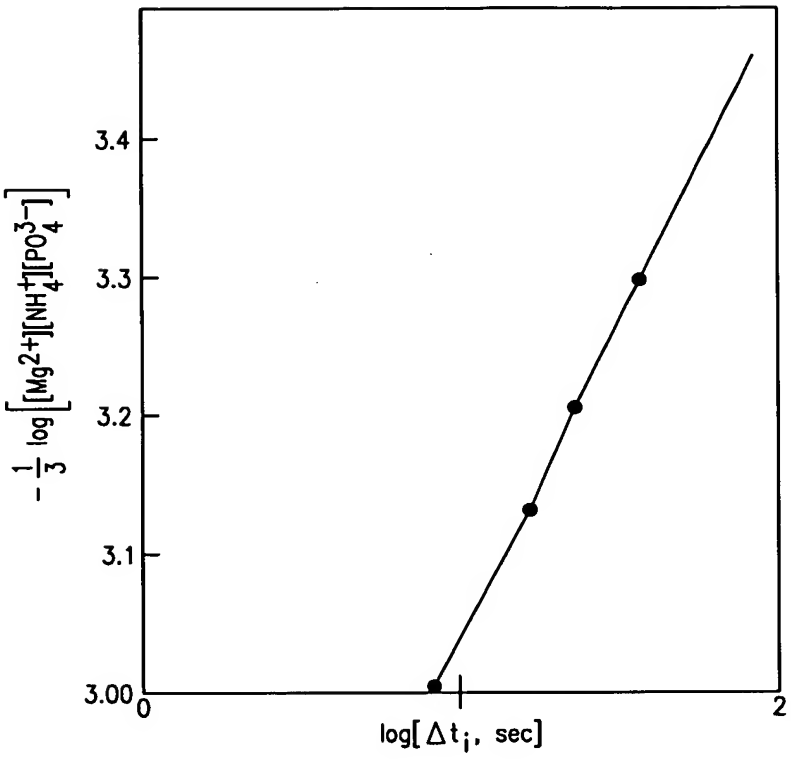
Variation of Equilibrium Conditional Solubility versus pH for Struvite (from Ohlinger et al., 1998)

FIG. 1



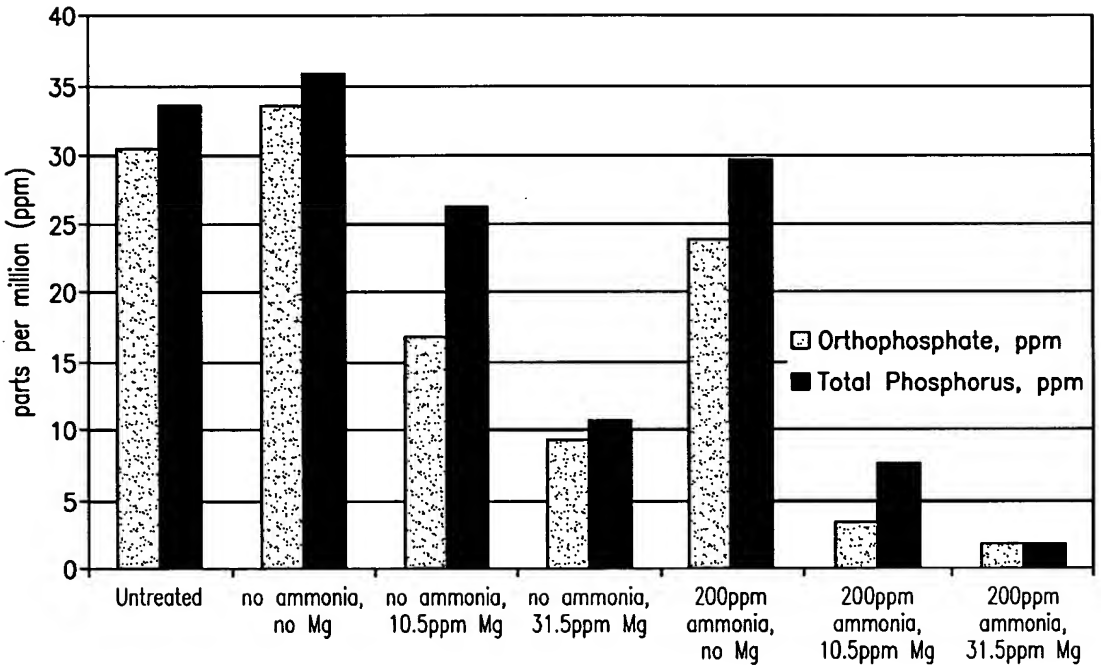
Free Energy versus Number of Particles in a Precipitating Crystal

FIG. 2



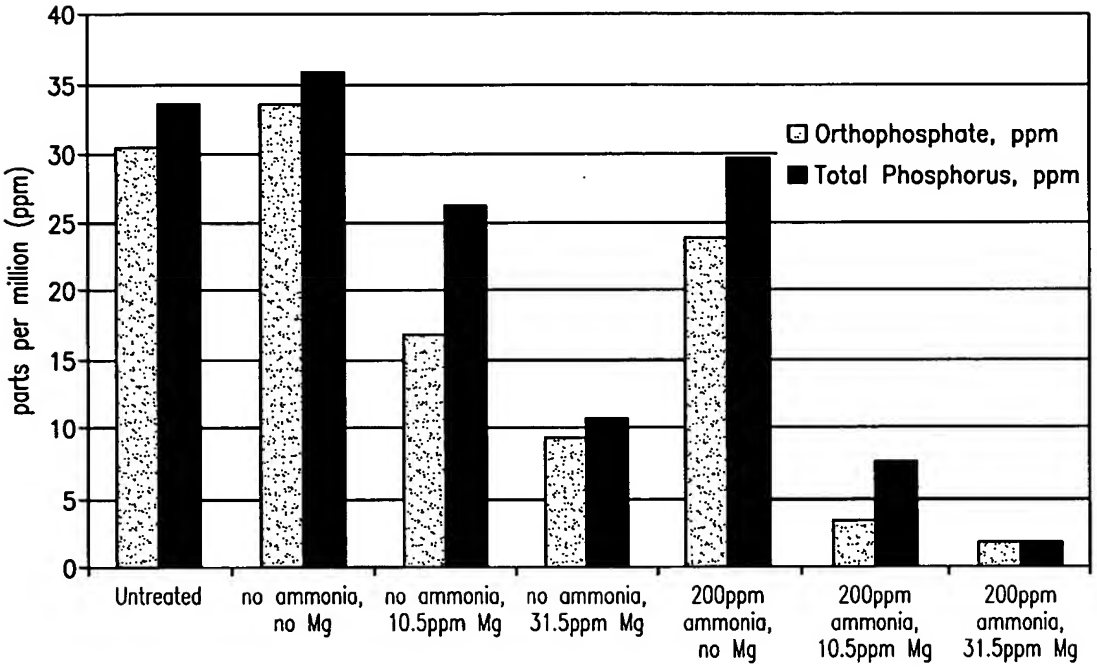
Concentration (−1/3 log of Ionic Product, Mol/L) versus Induction Time (Sec) for Struvite Precipitation

FIG. 3



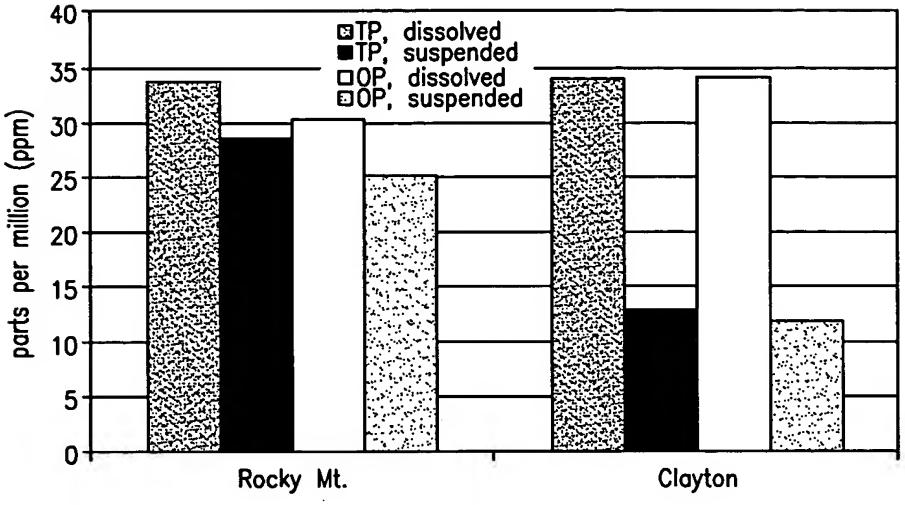
Dissolved OP and TP (ppm) in Untreated and Treated Effluent from Rocky Mount Lagoon

FIG. 4



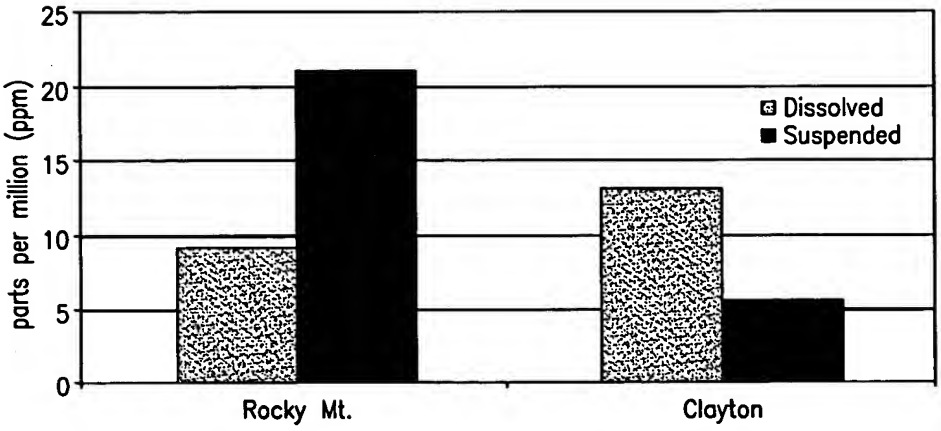
Dissolved OP and TP (ppm) in Untreated and Treated Effluent from Clayton Digester

FIG. 5



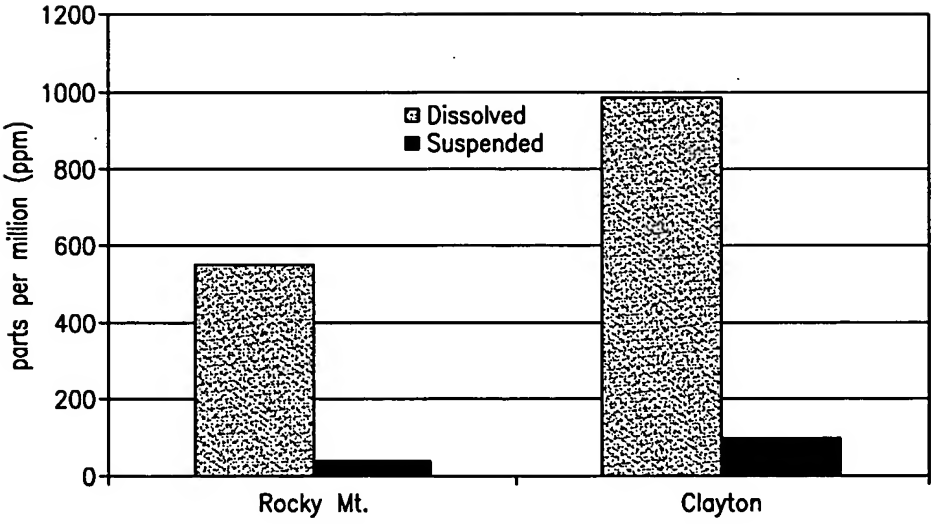
Breakdown of Phosphorus Content (ppm) by Form in
Rocky Mount and Clayton Effluent

FIG. 6



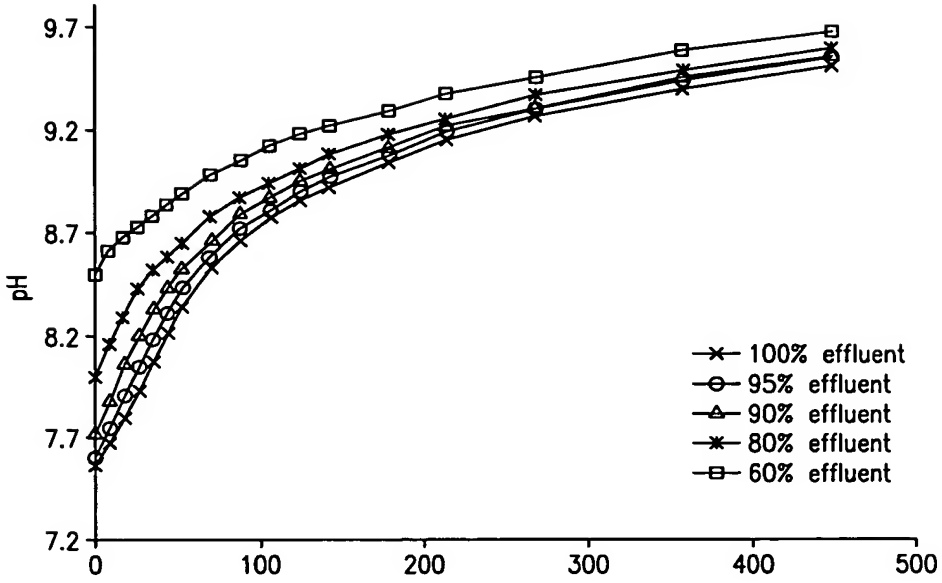
Breakdown of Mg Content (ppm) by Form in
Rocky Mount and Clayton Effluent

FIG. 7



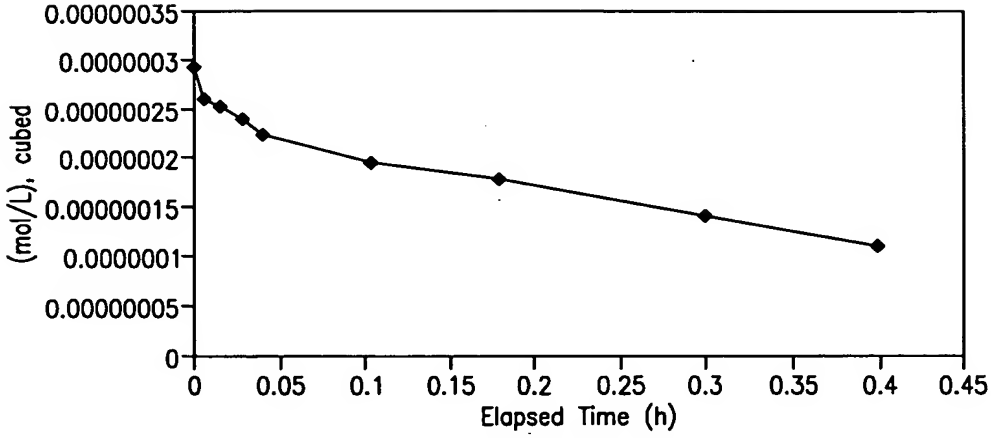
Breakdown of TAN (ppm) by Form
in Rocky Mount and Clayton Effluent

FIG. 8



pH versus Amount of Ammonia Added (ppm) for Five Ratios of Effluent to Mg–Supplementing Solution

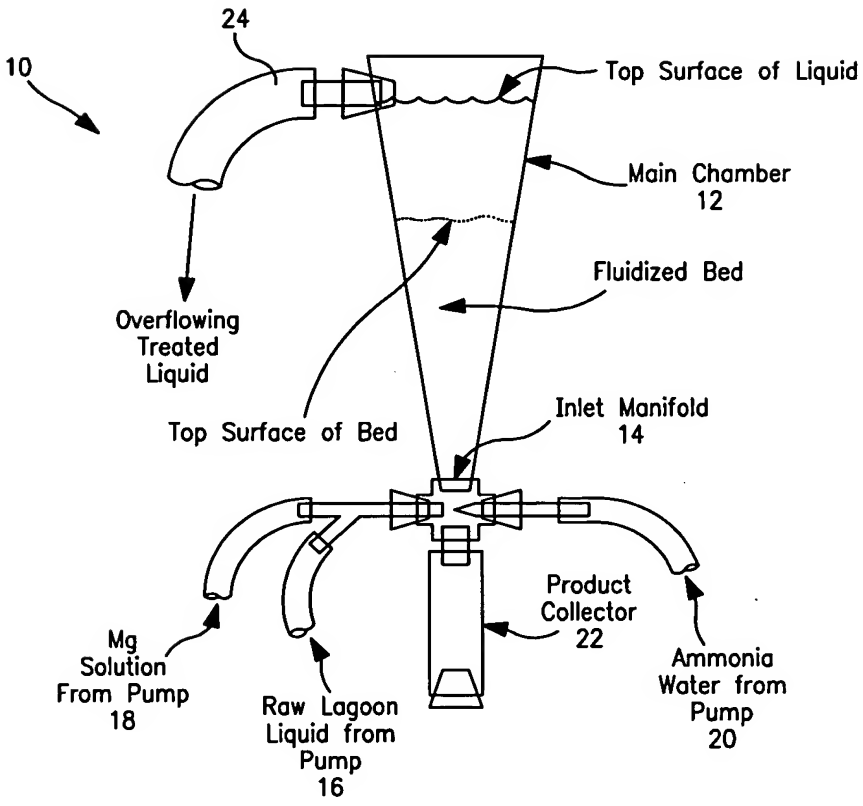
FIG. 9



Excess Molar Product $(mol/L)^3$ versus Time (h) Elapsed from pH, OP, and Mg Augmentation

FIG. 10

Title: APPARATUS AND METHOD FOR REMOVING PHOSPHORUS FROM WASTE LAGOON EFFLUENT
Applicant: Bowers et al.
Serial No.: 10/659,239
Atty Docket: 297/181



Sketch of Laboratory-Scale Continuous Crystallizer

FIG. 11

Title: APPARATUS AND METHOD FOR REMOVING PHOSPHORUS FROM WASTE LAGOON EFFLUENT
Applicant: Bowers et al.
Serial No.: 10/659,239
Atty Docket: 297/181

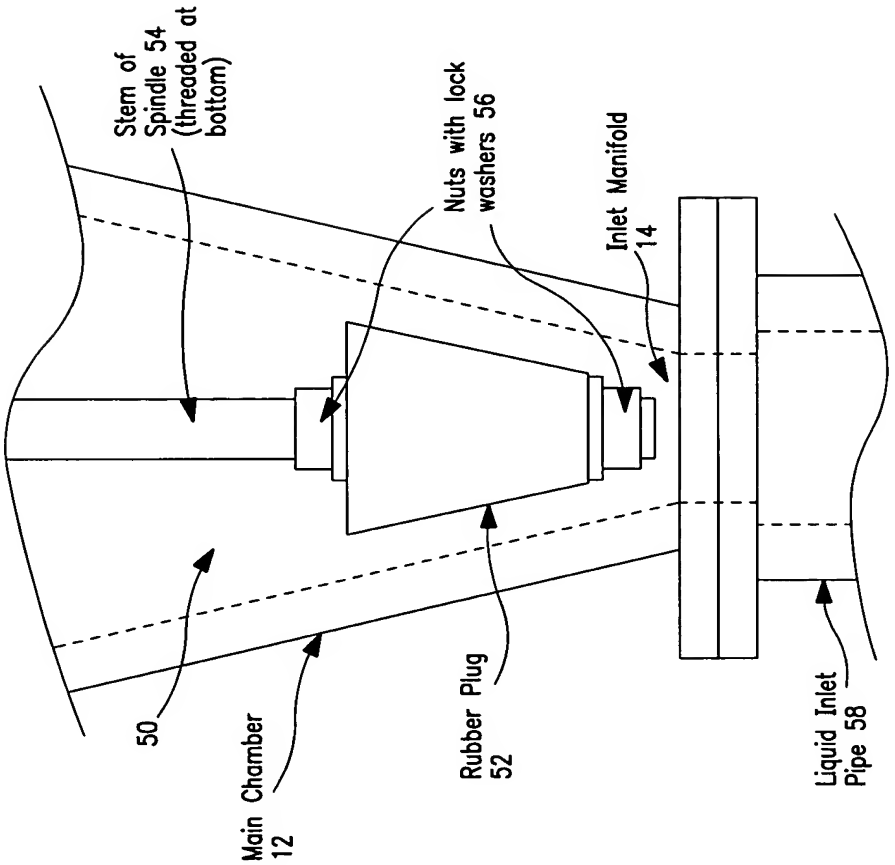
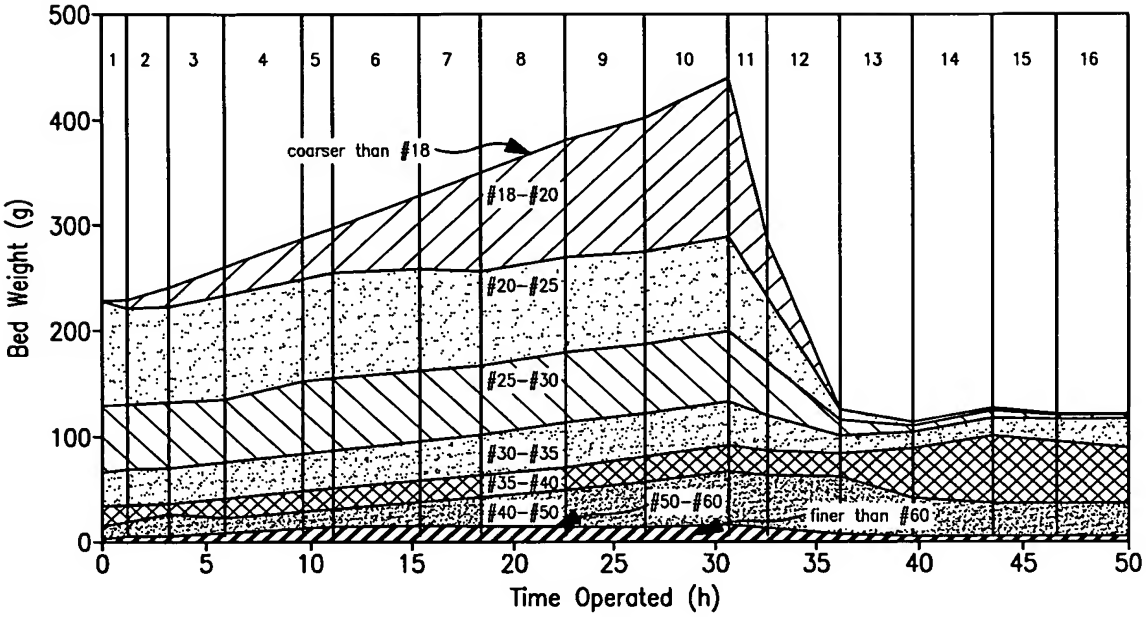
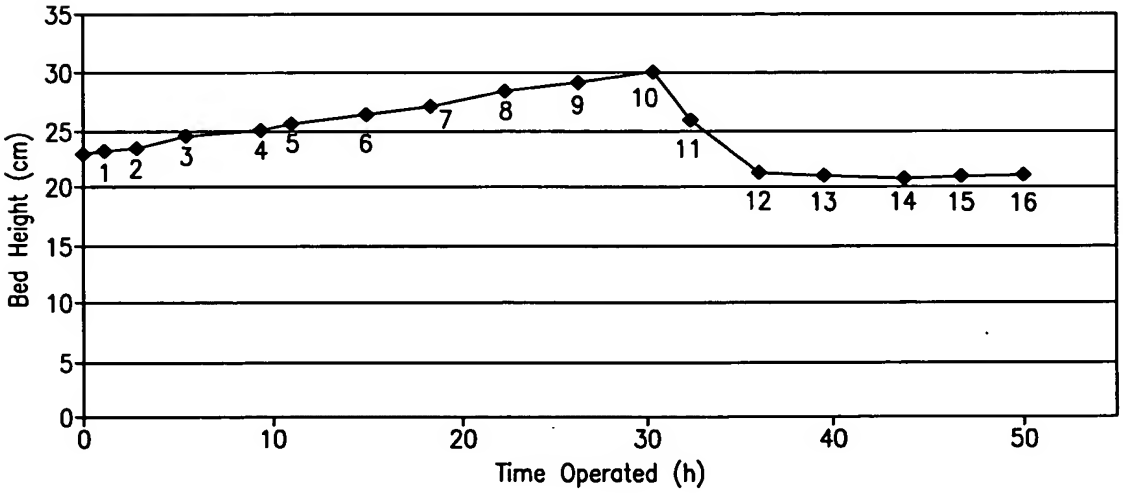


FIG. 1 IA



First Series of FCRs: Bed Weight (g), Broken Down by Particle Size (Standard Sieve), vs. Time Operated (h) (Numbered Vertical Strips Correspond with Runs)

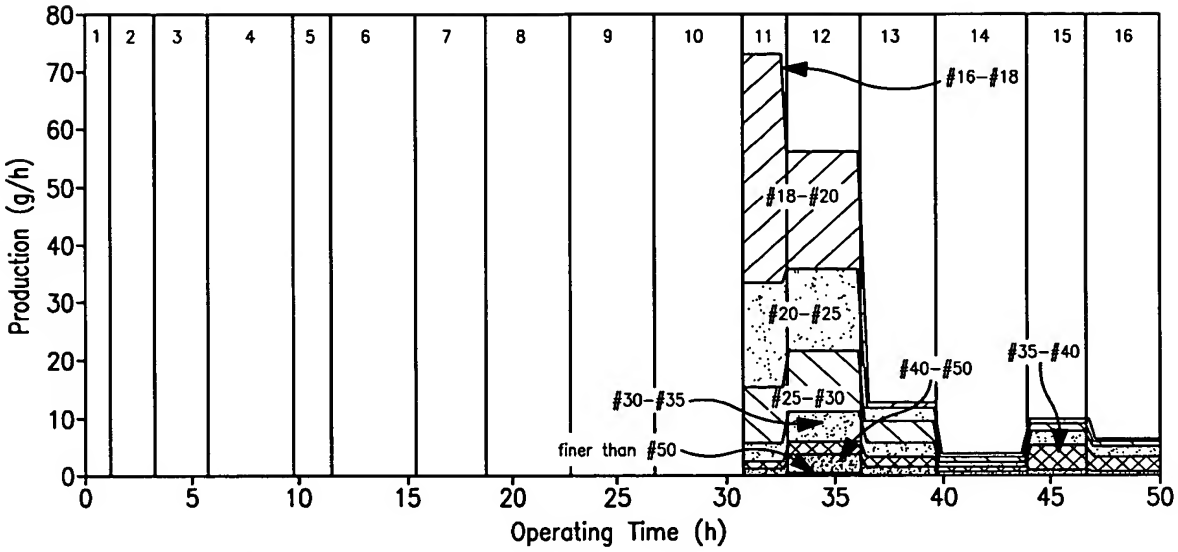
FIG. 12



First Series of FCRs: Bed Height (cm) at End of Run vs. Operating Time (h) (Run Numbers Indicated)

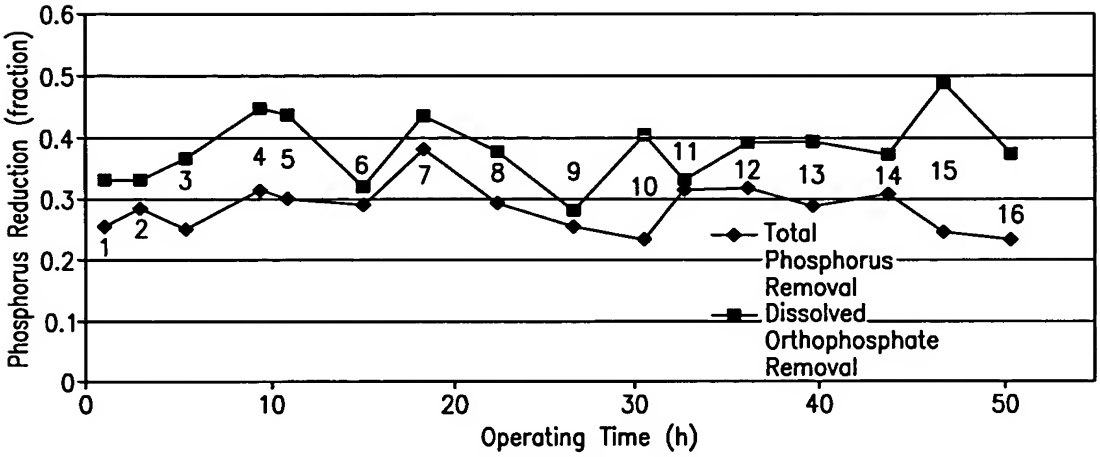
FIG. 13

Title: APPARATUS AND METHOD FOR REMOVING PHOSPHORUS FROM WASTE LAGOON EFFLUENT
Applicant: Bowers et al.
Serial No.: 10/659,239
Atty Docket: 297/181



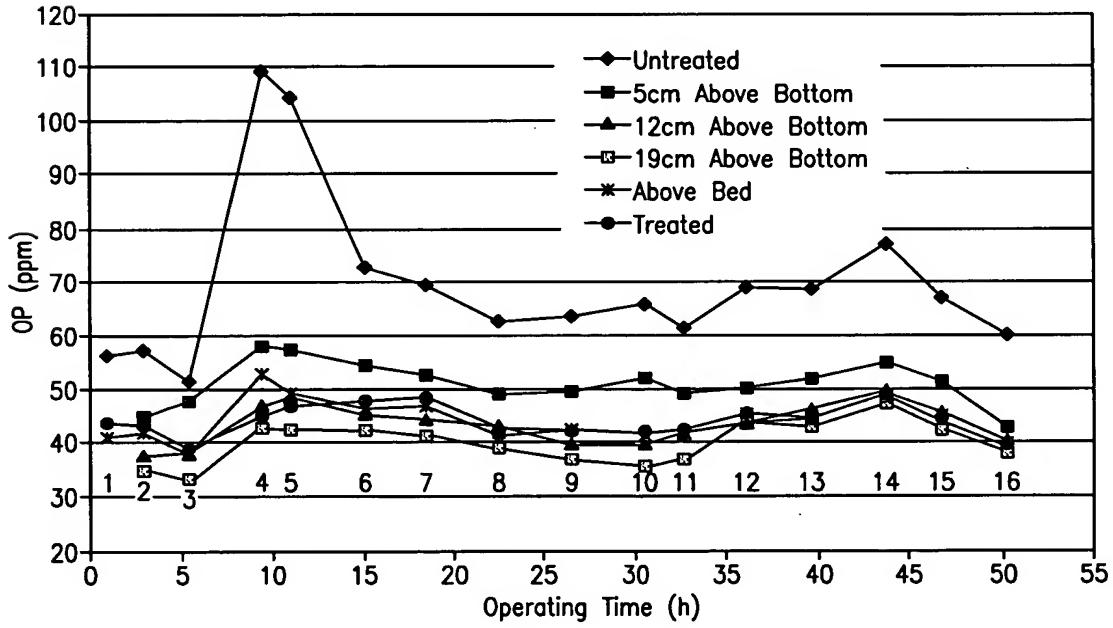
First Series of FCRs: Production (g/h), Averaged Over Each Run, Broken Down by Particle Size (Standard Sieve) (Numbered Vertical Strips Correspond with Runs)

FIG. 14



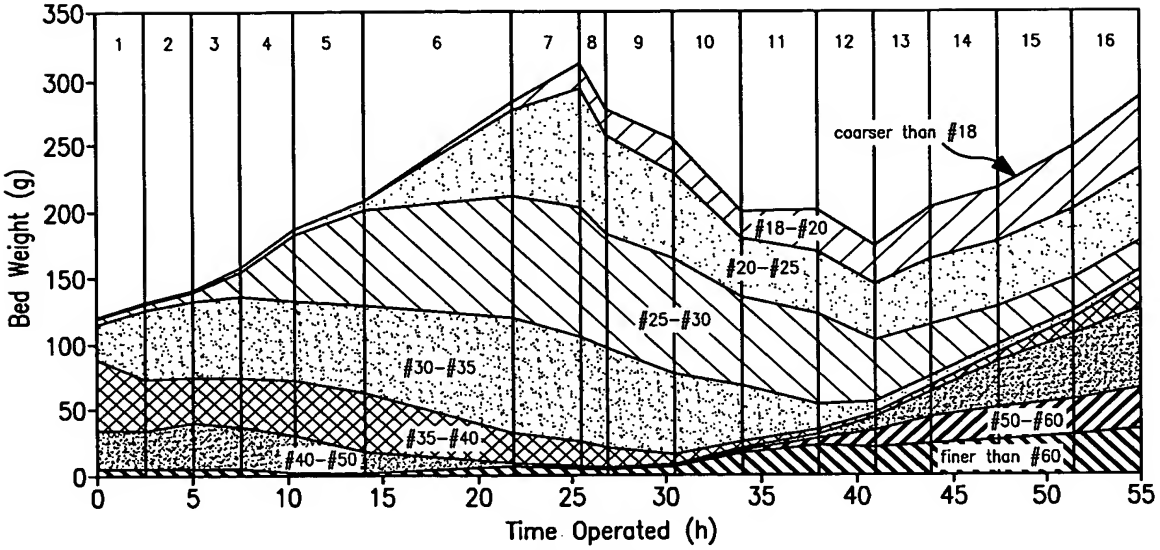
First Series of FCRs: Phosphorus Reduction (fraction) vs. Operating Time (h)
(Run Numbers Indicated)

FIG. 15



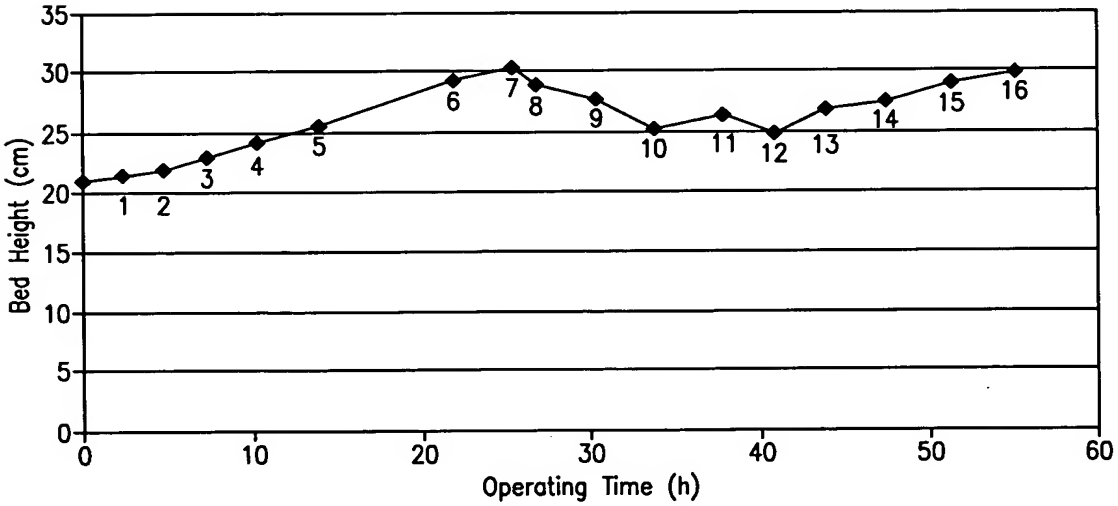
First Series of FCRs: OP (ppm) at Various Sampling Points vs. Operating Time (h)
(Run Numbers Indicated)

FIG. 16



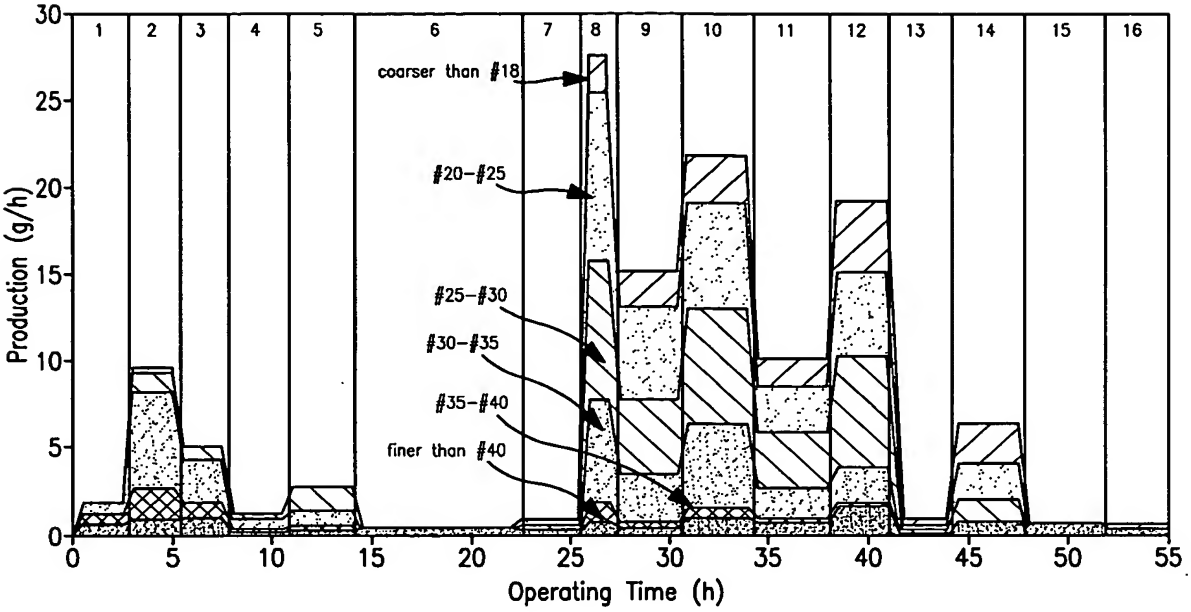
Second Series of FCRs: Bed Weight (g), Broken Down by Particle Size (Standard Sieve), vs. Time Operated (h) (Numbered Vertical Strips Correspond with Runs)

FIG. 17



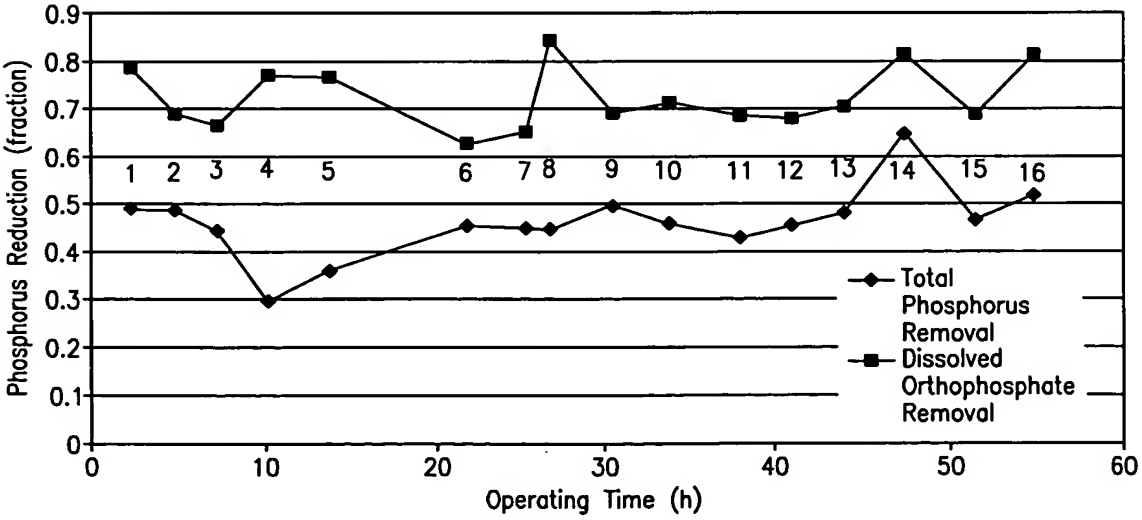
Second Series of FCRs: Bed Height (cm) at End of Run vs. Operating Time (h) (Run Numbers Indicated)

FIG. 18



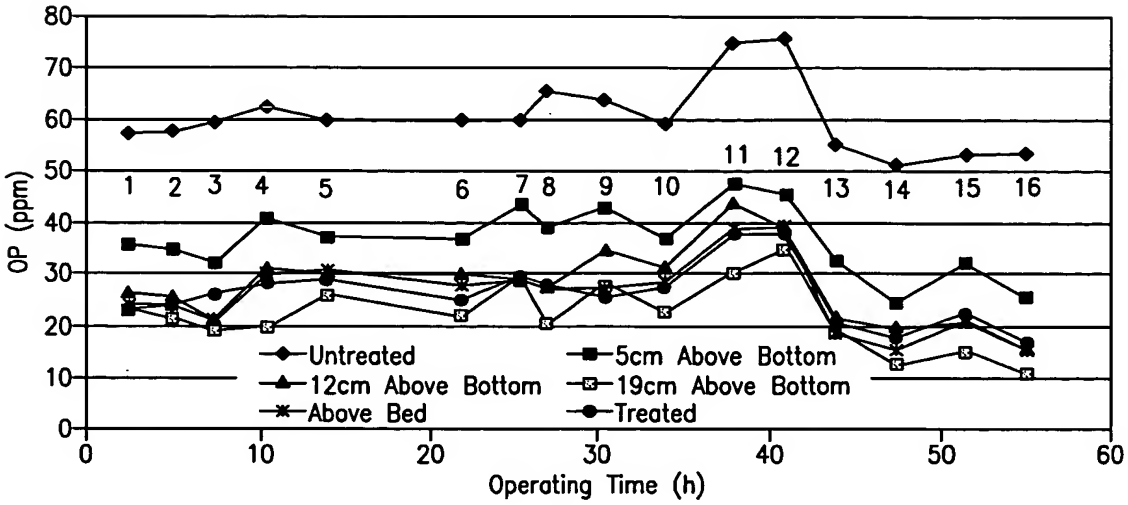
Second Series of FCRs: Production (g/h), Averaged Over Each Run,
Broken Down by Particle Size (Standard Sieve)
(Numbered Vertical Strips Correspond with Runs)

FIG. 19



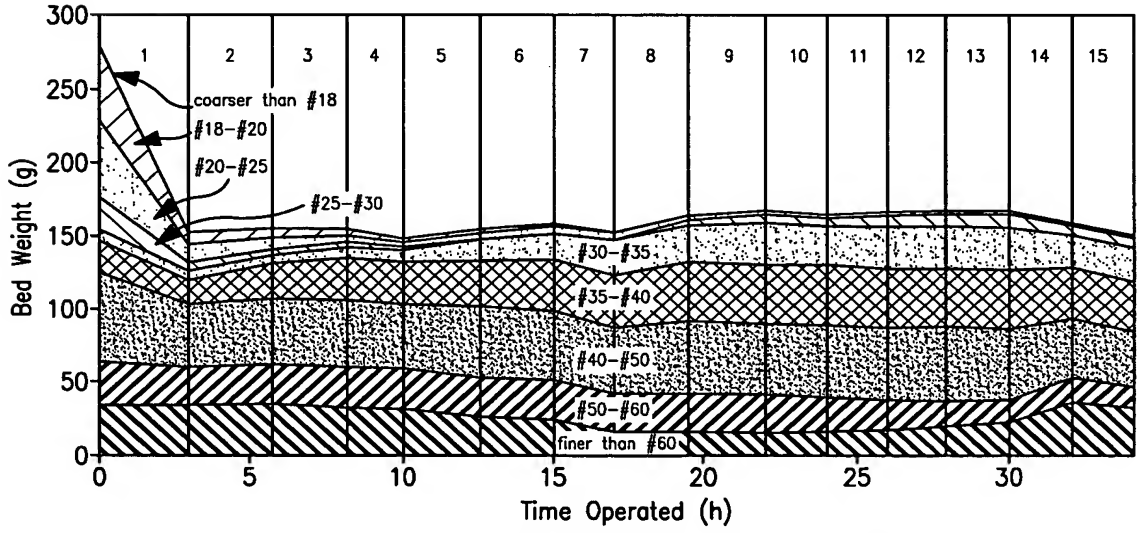
Second Series of FCRs: Phosphorus Reduction (fraction) vs.
Operating Time (h)
(Run Numbers Indicated)

FIG. 20



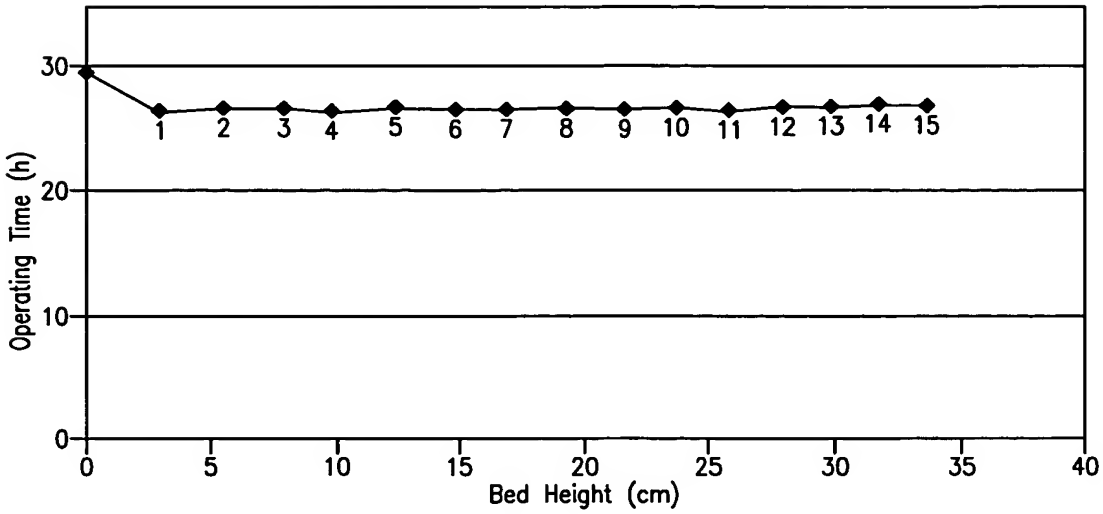
Second Series of FCRs: OP (ppm) at Various Sampling Points
vs. Operating Time (h)
(Run Numbers Indicated)

FIG. 21



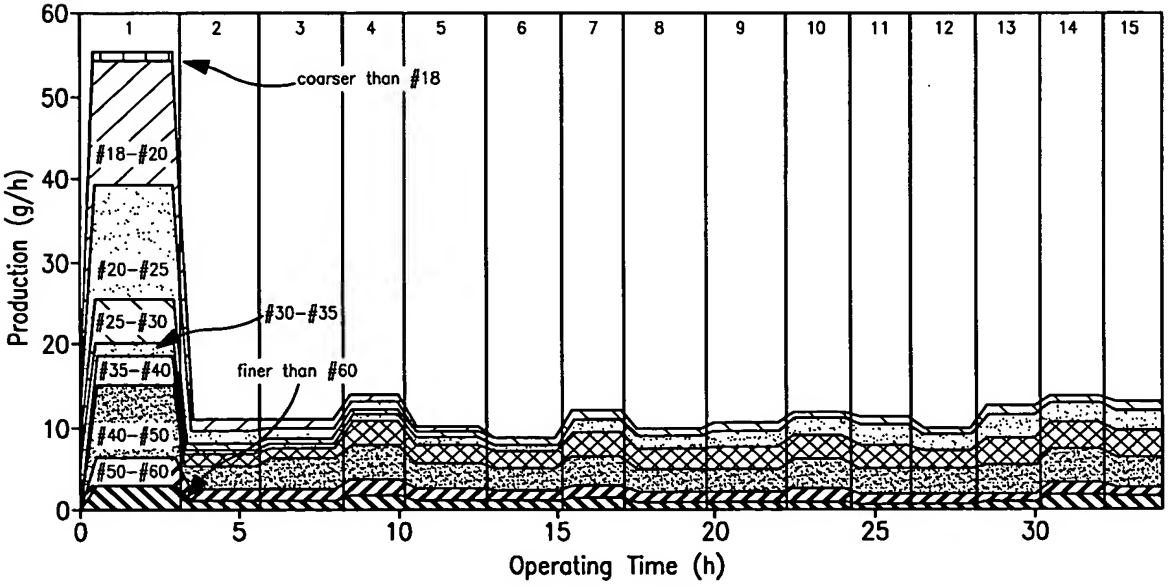
Third Series of FCRs: Bed Weight (g), Broken Down by
Particle Size (Standard Sieve), vs. Time Operated (h)
(Numbered Vertical Strips Correspond with Runs)

FIG. 22



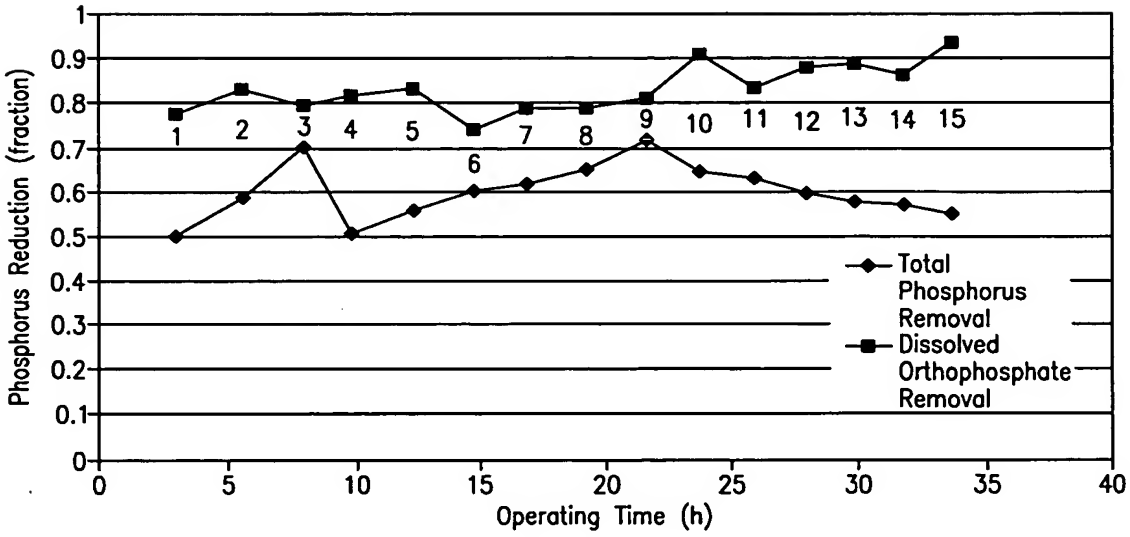
Third Series of FCRs: Bed Height (cm) at End of Run vs.
Operating Time (h)
(Run Numbers Indicated)

FIG. 23



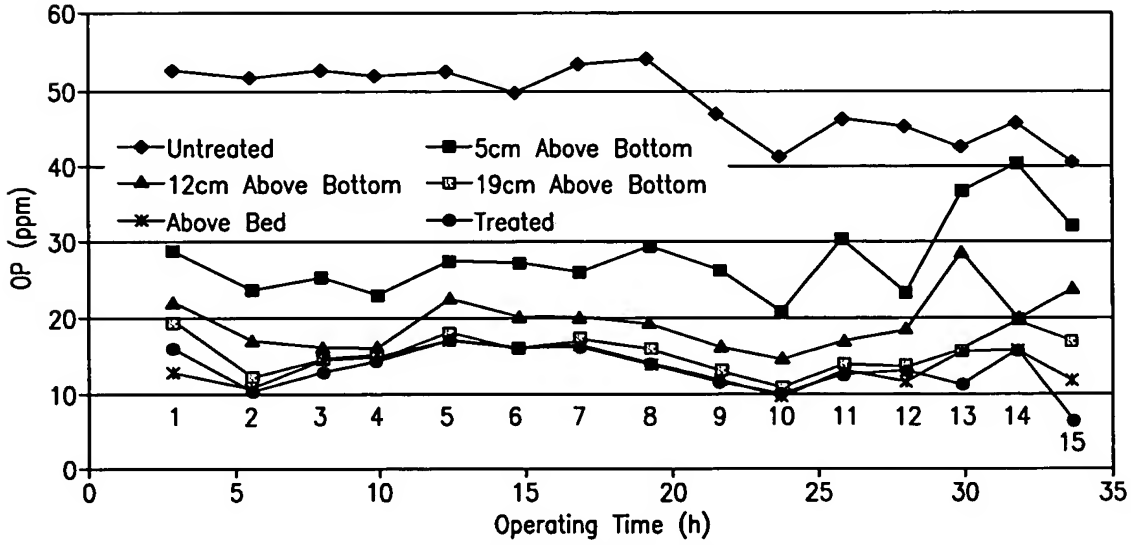
Third Series of FCRs: Production (g/h), Averaged Over Each Run,
Broken Down by Particle Size (Standard Sieve)
(Numbered Vertical Strips Correspond with Runs)

FIG. 24



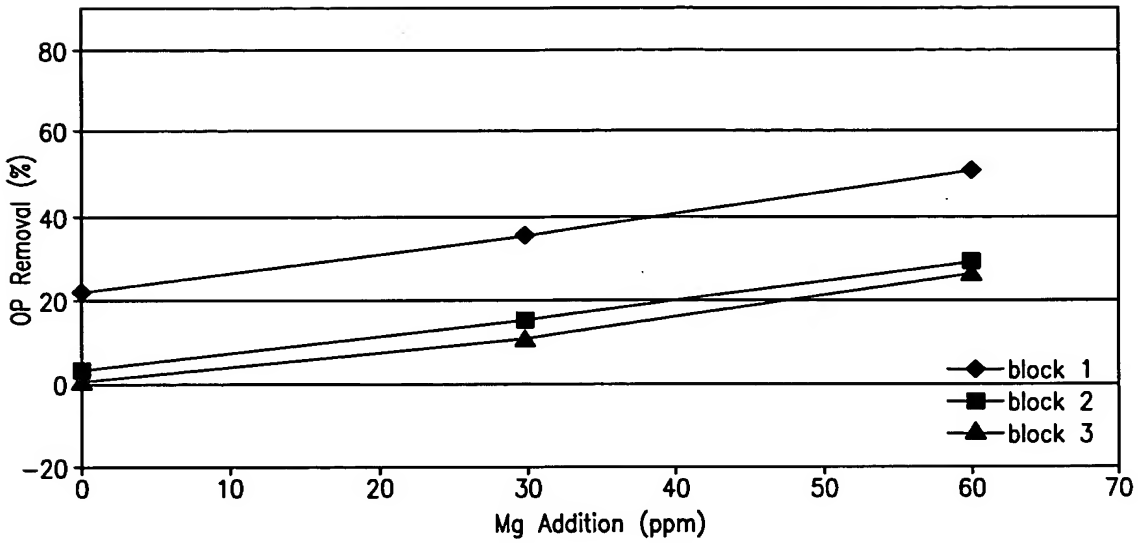
Third Series of FCRs: Phosphorus Reduction (fraction) vs.
Operating Time (h)
(Run Numbers Indicated)

FIG. 25



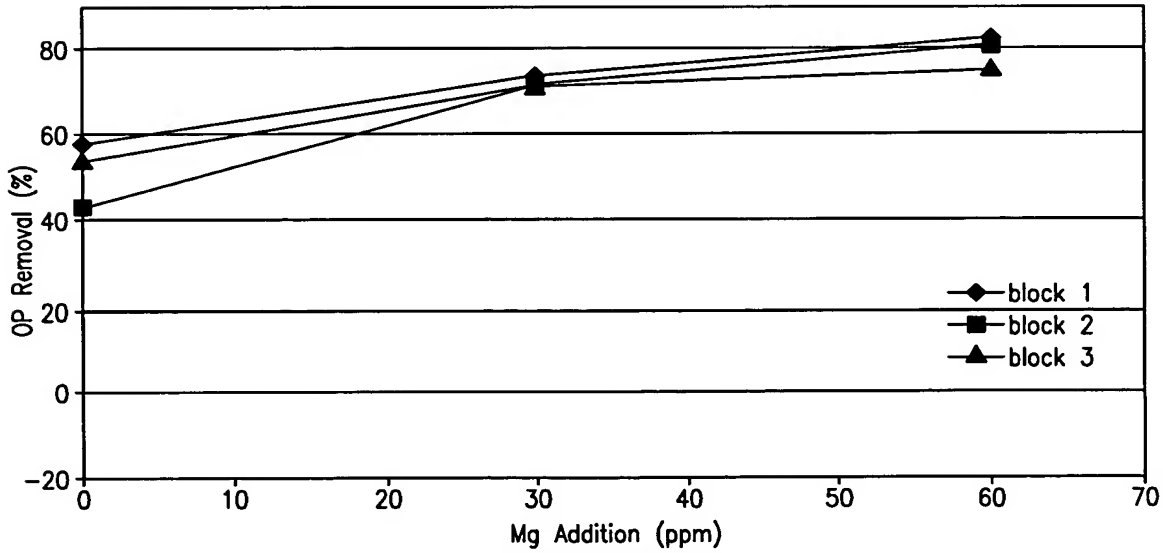
Third Series of FCRs: OP (ppm) at Various Sampling Points
vs. Operating Time (h)
(Run Numbers Indicated)

FIG. 26



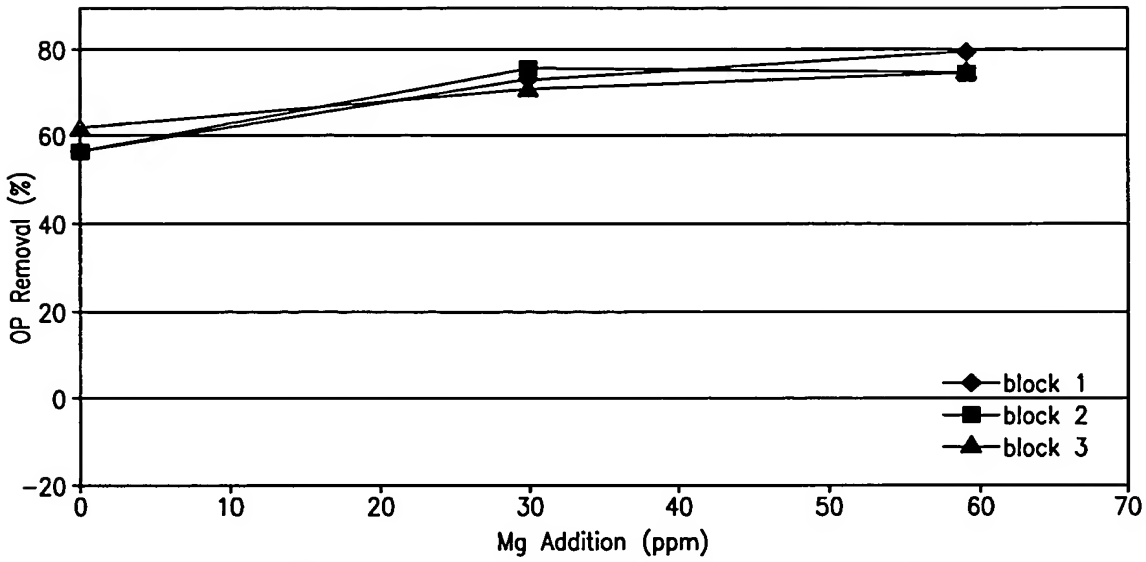
MVRs: OP Removal (%) vs. Mg Addition (ppm) with Zero Ammonia and 41.2 L/h Flow

FIG. 27



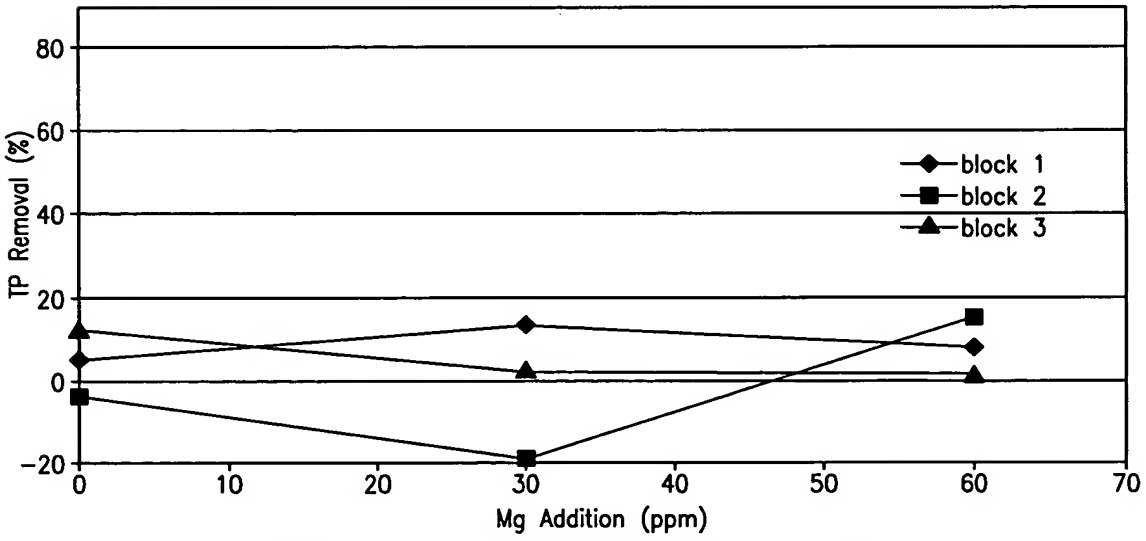
MVRs: OP Removal (%) vs. Mg Addition (ppm) with 100 ppm (as TAN) Ammonia Addition and 41.2 L/h Flow

FIG. 28



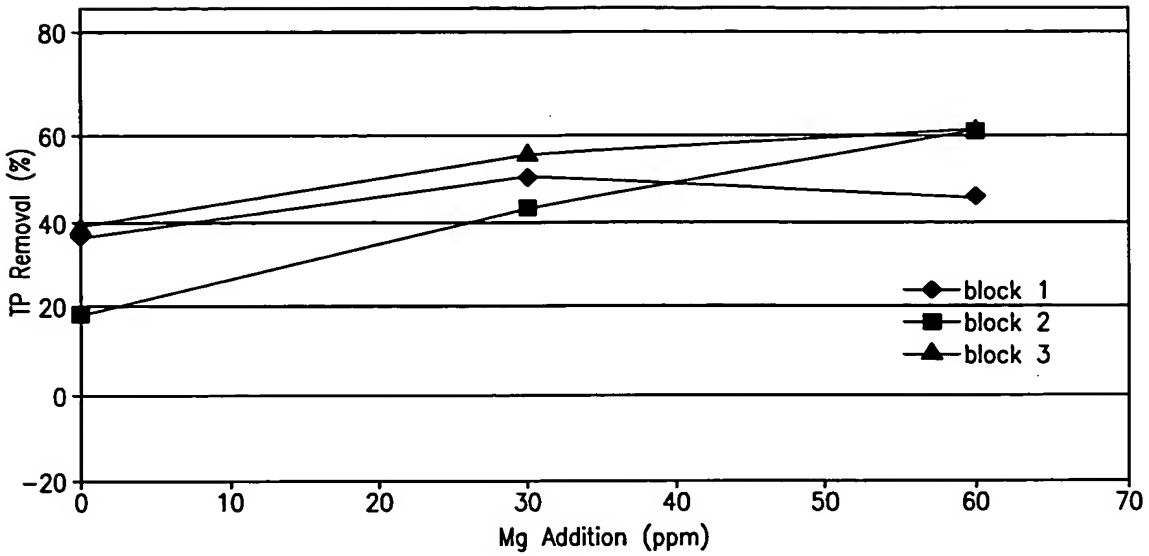
MVRs: OP Removal (%) vs. Mg Addition (ppm) with 200 ppm (as TAN) Ammonia and 41.2 L/h Flow

FIG. 29



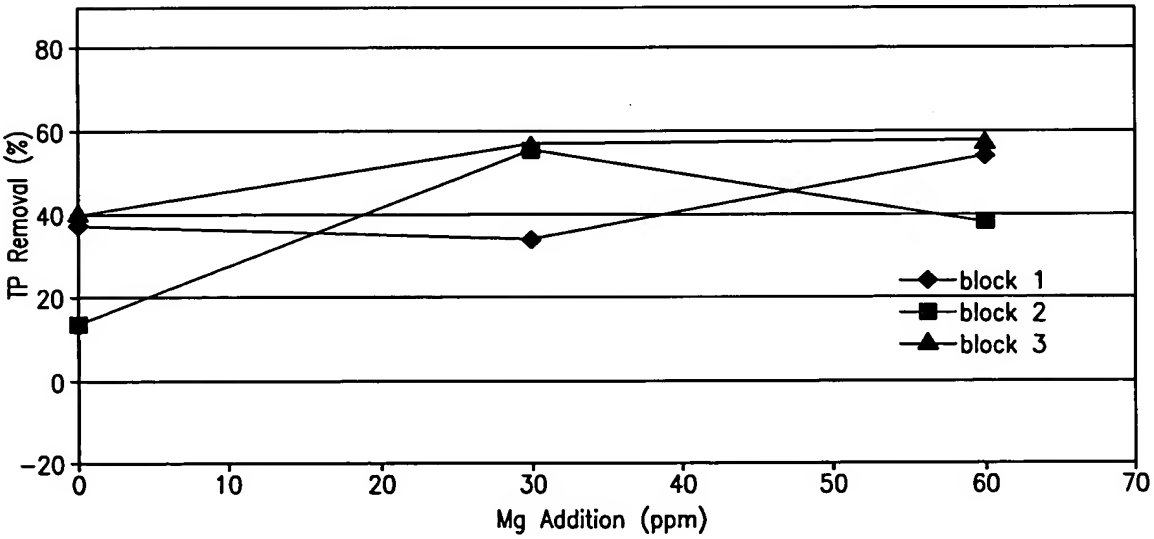
MVRs: TP Removal (%) vs. Mg Addition (ppm) with Zero Ammonia and 41.2 L/h Flow

FIG. 30



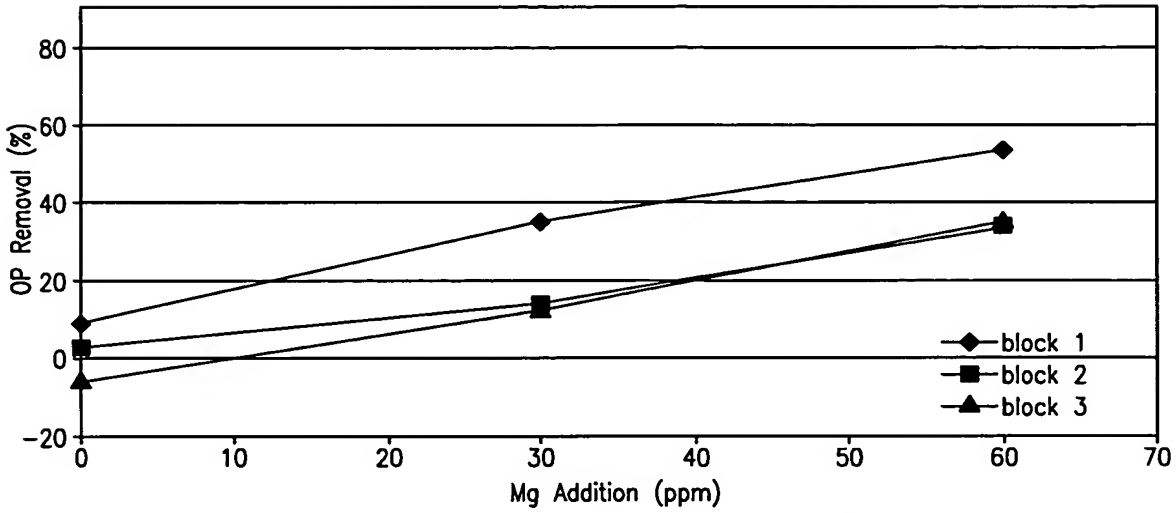
MVRs: TP Removal (%) vs. Mg Addition (ppm) with 100 ppm (as TAN) Ammonia and 41.2 L/h Flow

FIG. 31



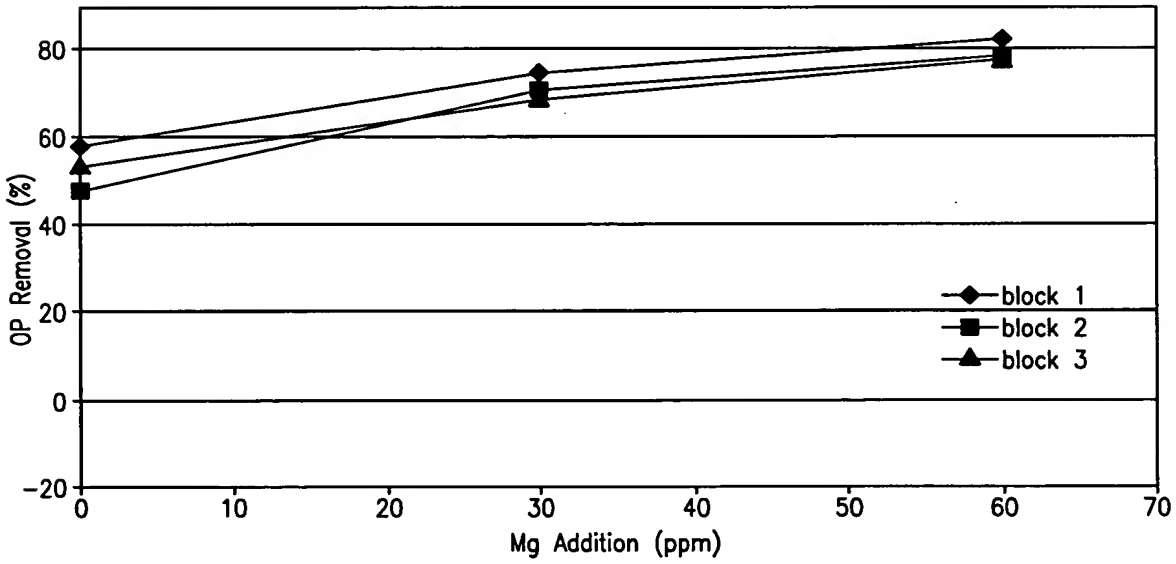
MVRs: TP Removal (%) vs. Mg Addition (ppm) with 200 ppm (as TAN) Ammonia and 41.2 L/h Flow

FIG. 32



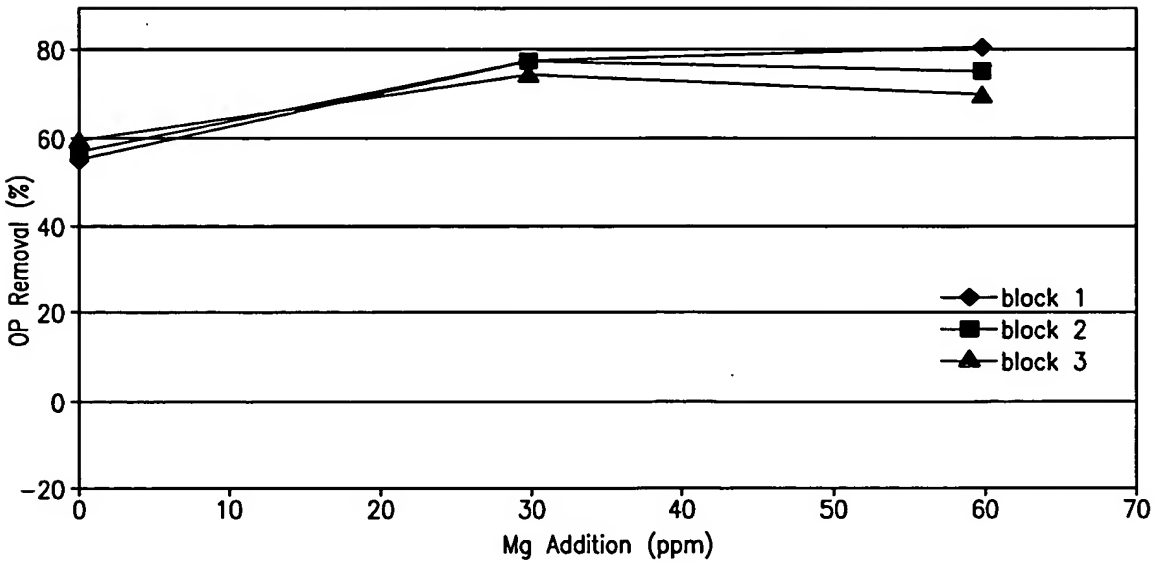
MVRs: OP Removal (%) vs. Mg Addition (ppm) with Zero Ammonia and 56.8 L/h Flow

FIG. 33



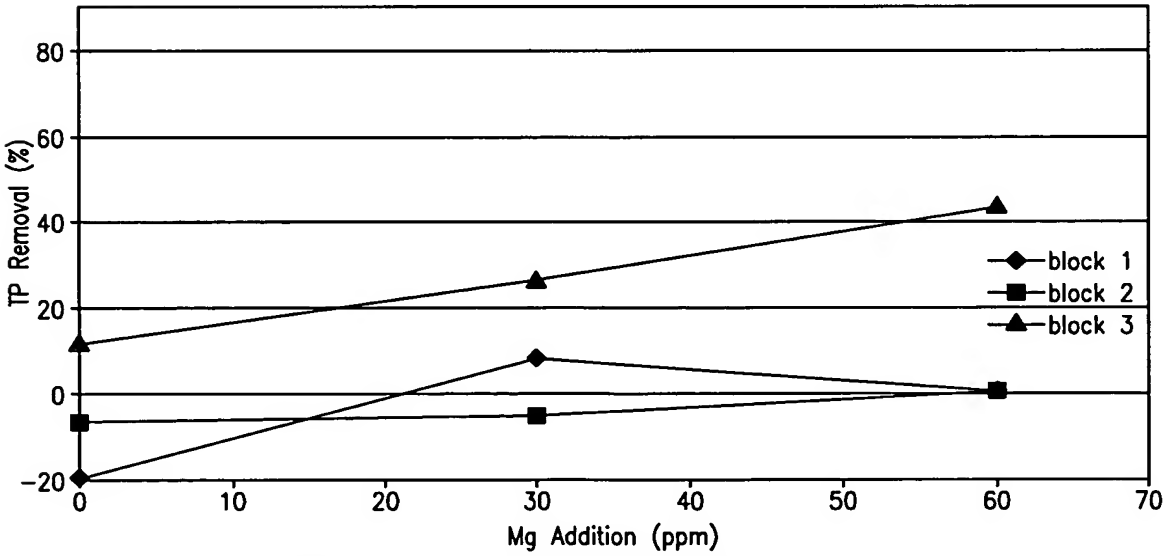
MVRs: OP Removal (%) vs. Mg Addition (ppm) with 100 ppm (as TAN) Ammonia and 56.8 L/h Flow

FIG. 34



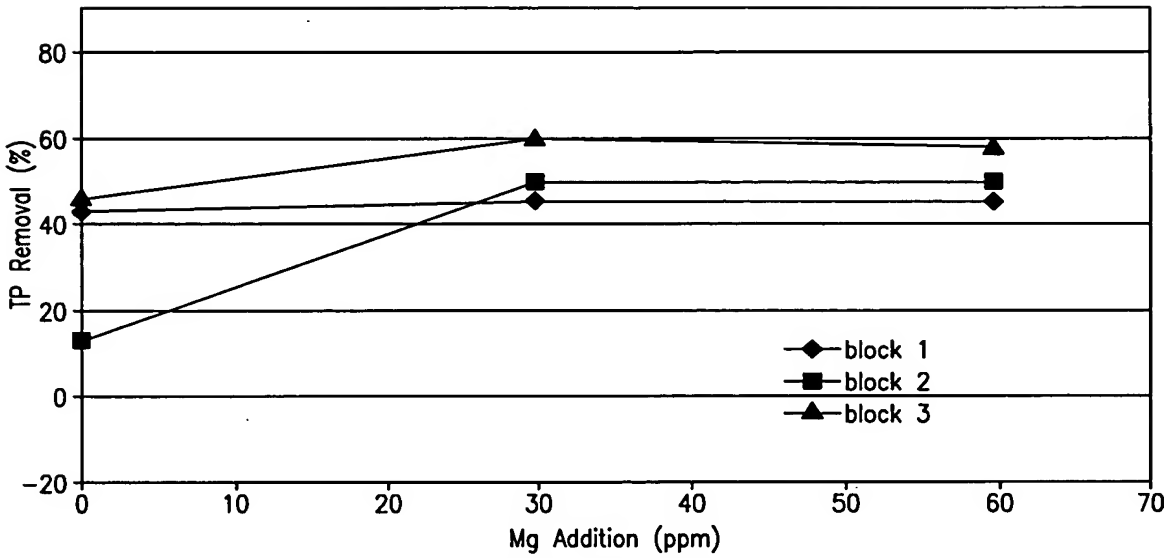
MVRs: OP Removal (%) vs. Mg Addition (ppm) with 200 ppm (as TAN) Ammonia and 56.8 L/h Flow

FIG. 35



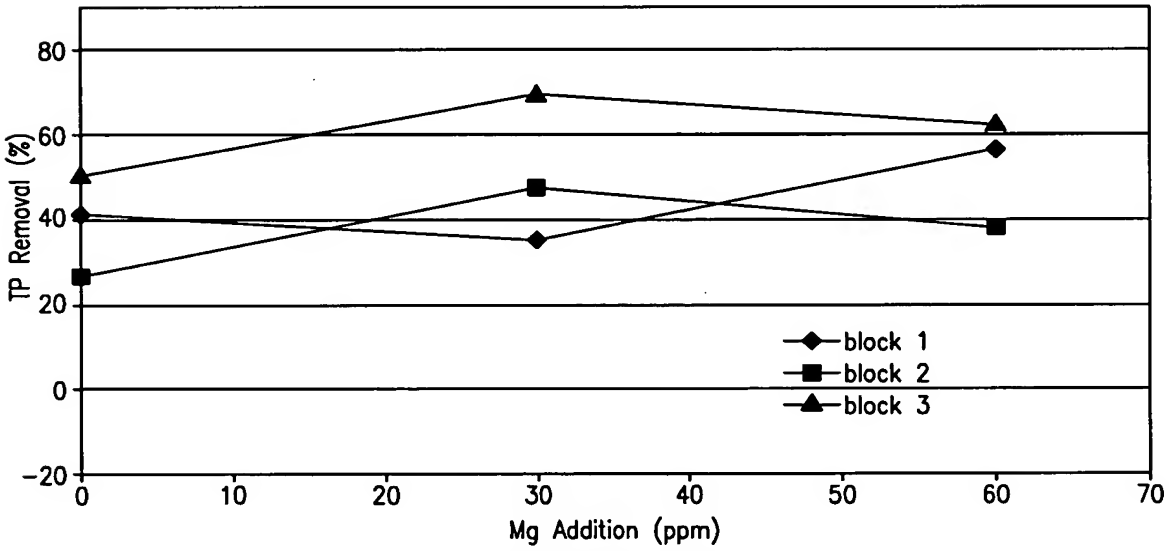
MVRs: TP Removal (%) vs. Mg Addition (ppm) with Zero Ammonia and 56.8 L/h Flow

FIG. 36



MVRs: TP Removal (%) vs. Mg Addition (ppm) with 100 ppm (as N) Ammonia and 56.8 L/h Flow

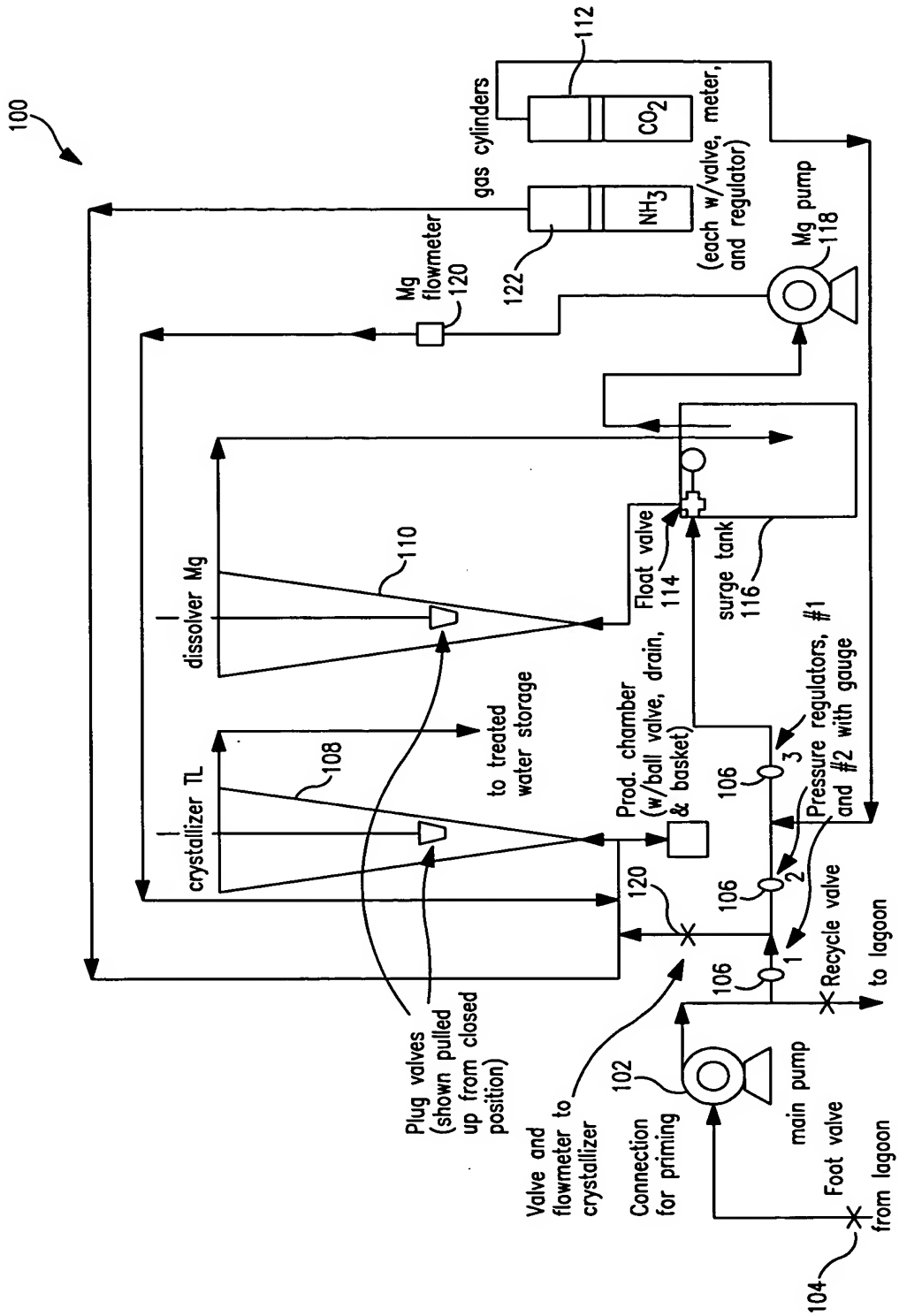
FIG. 37



MVRs: TP Removal (%) vs. Mg Addition (ppm) with 200 ppm (as N) Ammonia and 56.8 L/h Flow

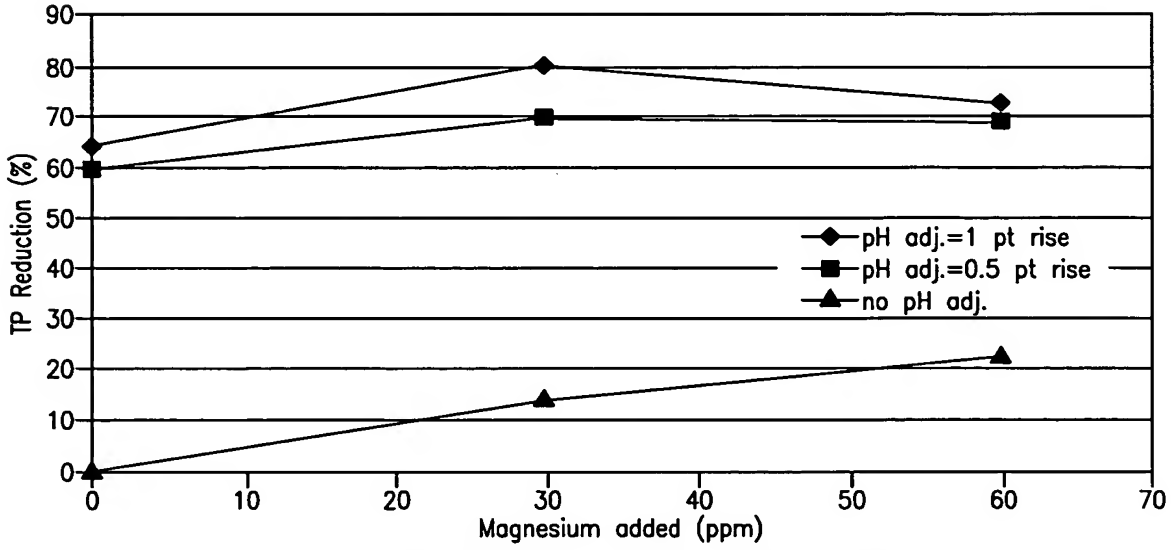
FIG. 38

Title: APPARATUS AND METHOD FOR REMOVING PHOSPHORUS FROM WASTE LAGOON EFFLUENT
Applicant: Bowers et al.
Serial No.: 10/659,239
Atty Docket: 297/181



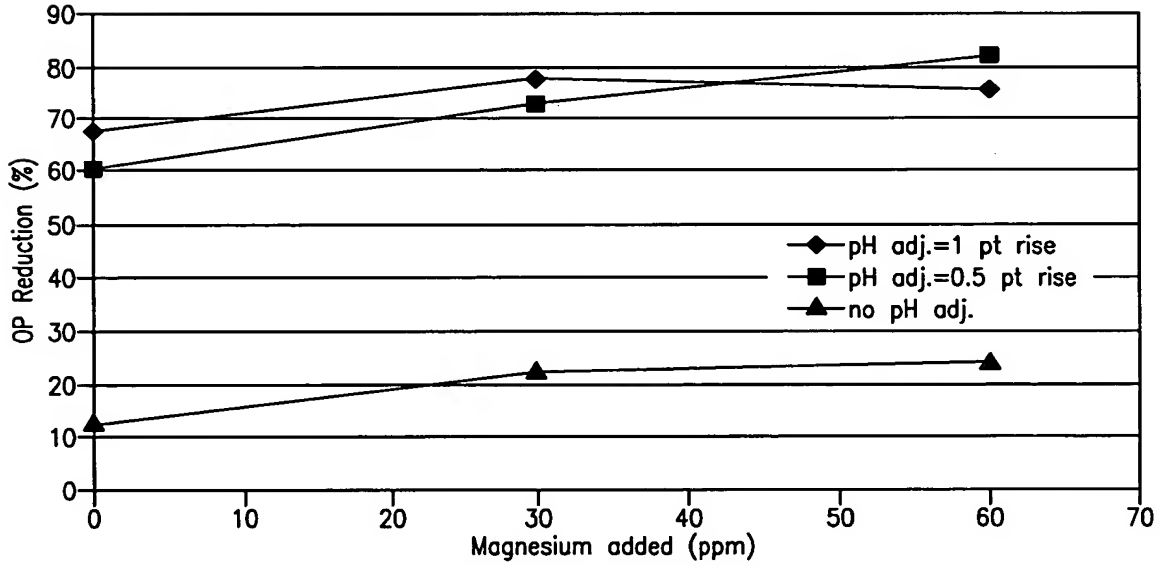
Schematic Representation of Field-Scale Crystallizer, Showing Principal Components

FIG. 39



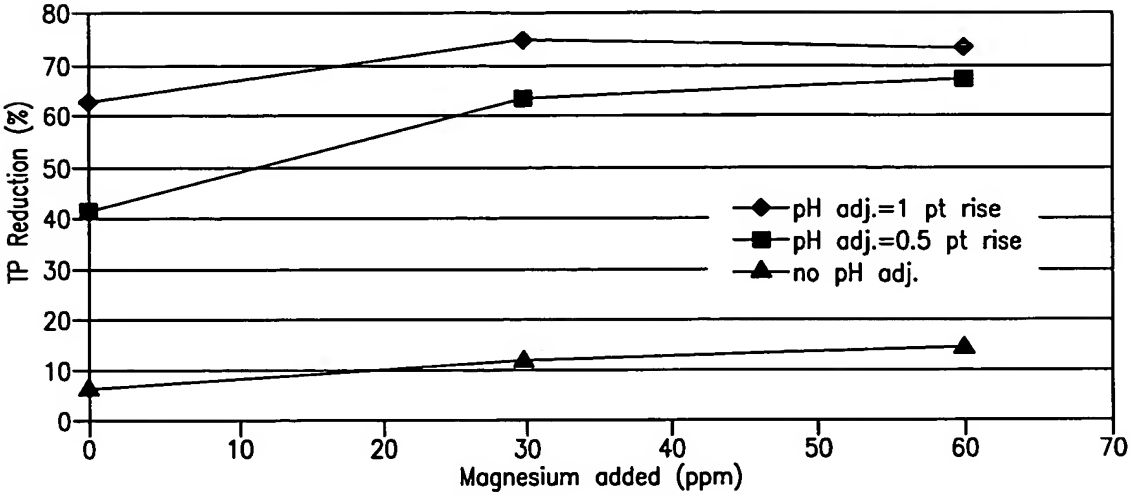
TP Reduction (%) vs. Magnesium added (ppm)
at Lower Flow Rate (341 L/h)

FIG. 40



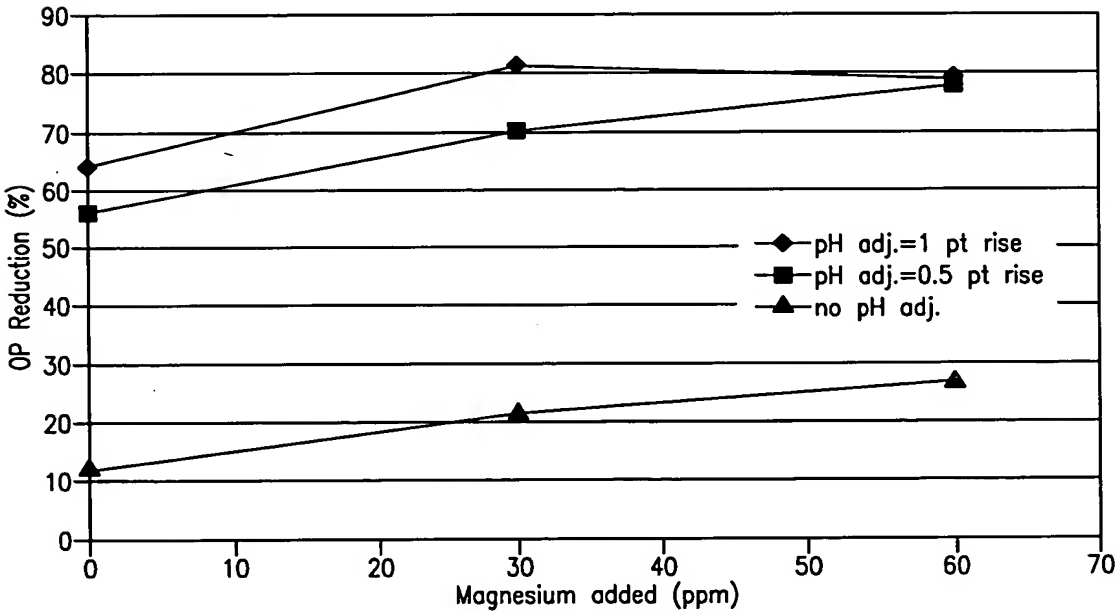
OP Reduction (%) vs. Magnesium added (ppm)
at Lower Flow Rate (341 L/h)

FIG. 41



TP Reduction (%) vs. Magnesium added (ppm)
at Higher Flow Rate (568 L/h)

FIG. 42



OP Reduction (%) vs. Magnesium added (ppm)
at Higher Flow Rate (568 L/h)

FIG. 43